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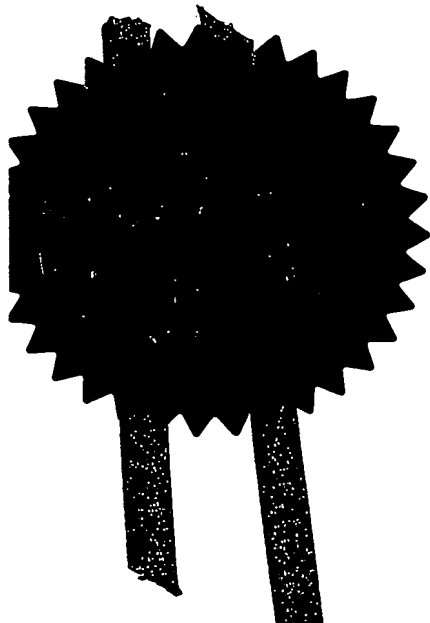
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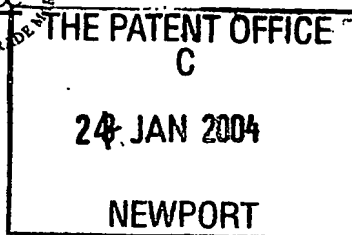


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GB0401560.8

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of:-

PITCHLINE LIMITED
Incorporated in the United Kingdom
24a FrancisStreet
Lurgan
Armagh
BT66 6DN
United Kingdom
ADP No. 08883118001



The Patent Office
Cardiff Road
Newport
South Wales
NP10 8QQ

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

P359901/NBR/MEA

2. Patent application number

(The Patent Office will fill in this part)

0401560.8

24 JAN 2004

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Barry Douglas
24a Francis Street
Lurgan
Armagh
BT30 6AS

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

SECTION 30 (1977 ACT) APPLICATION FILED 28/5/04
8752404001

4. Title of the invention

"Method of marking pitch lines"

5. Name of your agent (if you have one)

Murgitroyd & Company

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Scotland House
165-169 Scotland Street
Glasgow
G5 8PL

Patents ADP number (if you know it)

1198015

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

Yes No

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

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Continuation sheets of this form	-
Description	10
Claim(s)	-
Abstract	-
Drawing(s)	2 + 2 RM

10. If you are also filing any of the following, state how many against each item.

Priority documents	-
Translations of priority documents	-
Statement of inventorship and right to grant of a patent (Patents Form 7/77)	-
Request for preliminary examination and search (Patents Form 9/77)	-
Request for substantive examination (Patents Form 10/77)	-
Any other documents (please specify)	-

11. I/We request the grant of a patent on the basis of this application.

Signature	Murgitroyd & Company	Date	23 January 2004
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12. Name and daytime telephone number of person to contact in the United Kingdom
- | | |
|---------------|---------------|
| Mark Earnshaw | 0141 307 8400 |
|---------------|---------------|

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1 Method of Making Pitch Lines

2

3 The present invention relates to a method of making
4 lines in ground suitable for playing fields and the
5 like, and apparatus and material therefor.

6

7 In the island of Ireland, there are approximately
8 120,000 playing pitches for soccer, gaelic football,
9 cricket and the like. The lines for such pitches are
10 generally formed by a wheeled paint buggy, which
11 introduces a line of paint on the ground through the
12 travel of the front wheel through a paint reservoir.

13

14 However, heavily used pitches often require newly
15 painted lines every week during a playing season,
16 whereas these lines are often 'lost' in the non-
17 playing season as the surrounding grass encroaches,
18 and the pitches are not so regularly mowed. Weed or
19 grass killer can be added to the intended line, but
20 because grass is on either side of each line, the
21 grass and weeds still encroach quickly. It will be
22 appreciated the amount of time taken by groundsmen

1 to keep clearing and repainting pitch lines for
2 120,000 pitches in Ireland alone.

3
4 It is an object of the present invention to provide
5 more permanent lines in the ground.

6
7 Thus, according to one aspect of the present
8 invention, there is provided a method of creating a
9 marked line in a ground surface comprising the steps
10 of:

11 forming one or more slits in the ground surface;
12 inserting a line of material in the or each slit
13 such that part of the material is visible above the
14 ground surface.

15
16 The slit in the ground surface could be formed by
17 any suitable means, one such being a blade,
18 preferably having a sharpened or tapered edge to
19 assist entry into and through the ground surface.

20
21 The ground surface can be any surface on which a
22 slit can easily be formed, one such being earth,
23 more generally grassed earth.

24
25 In one embodiment of the present invention, the
26 method comprises forming between two and four slits,
27 preferably three slits, parallel in the ground, so
28 as to create a broader form of marked line. Where
29 the method involves forming multiple lines, the
30 lines can be any suitable distance apart. Where it
31 is intended generally to provide a single visible
32 marked line in the ground surface, the multiple

1 slits are preferably relatively close, such as 20mm,
2 inter-distant.

3
4 The or each slit created preferably creates little
5 or no visible disturbance on the ground surface
6 other than the marked line. Preferably, the ground
7 surface is rolled after the insertion of the or each
8 line of material.

9
10 The material may be any suitable material, at least
11 part of which is visible above the ground surface.
12 The material may be any suitable colour, white being
13 the commonest colour for many playing pitches.

14
15 Preferably, at least that part of the material
16 visible above the ground surface is partially or at
17 least substantially resistant to sunlight, in
18 particular UV light. In this regard, the material
19 may inherently have a high kilo-langley strength, or
20 be treated so as to have such a high strength.

21
22 In another embodiment of the present invention, the
23 material is at least partly open or has an open
24 structure, through which the ground surface, or
25 anything growing in the ground surface, such as the
26 roots of grass, etc, can extend so as to help anchor
27 the material in the slit either immediately and/or
28 over time.

29
30 According to another embodiment of the present
31 invention, the material is a polymer material such

1 as polypropylene. Such material is widely
2 available.

3
4 One range of polypropylene textile fibre materials
5 are geotextiles. Such materials have moisture
6 resistance so that water has no effect on tensile
7 strength or mechanical properties, extensive
8 chemical resistance, leachate compatibility,
9 biological resistance as polypropylene does not
10 support fungal growth, temperature stability,
11 ultraviolet resistance (preferably by the addition
12 of carbon black or other UV inhibitors), and
13 superior puncture and mullen burst strength (which
14 make them resistant to installation stresses). One
15 supplier of such materials is Don and Low Limited,
16 Forfar, Scotland.

17
18 The material is preferably inserted in the slit by
19 travel on the slit-forming means. More preferably,
20 the material travels on the edge of the slit-forming
21 means towards and into the surface, and is located
22 in the slit as the slit is being formed.

23
24 More preferably, at least a portion of the material
25 which is not inserted into the ground surface
26 comprises a number of separate or discrete fibres,
27 or fibre-like extensions. These together provide
28 the visual form of the line, but are wholly or
29 substantially individual like blades of grass. More
30 preferably, that portion of the material above the
31 ground surface is not damageable by a lawnmower or
32 ground trimmer or the like.

1
2 According to one embodiment of the present
3 invention, the material comprises a woven plastics
4 material, having a central woven portion which is
5 insertable in the ground surface, and extended weft
6 fibres adapted to partially or substantially
7 extended above the ground surface.

8
9 Thus, according to one embodiment of the present
10 invention, there is provided a method of creating a
11 marked line in a ground surface comprising the steps
12 of:
13 locating a slit-forming means having at least one
14 blade on the ground surface, such that a portion of
15 the blade enters the ground surface;
16 locating a fibrous or woven material on each blade;
17 traversing the slit forming means along the path of
18 the intended line;
19 allowing the material to travel with each blade into
20 the ground;
21 leaving the material in each slit formed such that
22 part of the material is visible above the ground
23 surface.

24
25 According to a further embodiment of the present
26 invention, the marked line formed by the present
27 invention is 'permanent', i.e. remains to form a
28 marked line for at least a number of years,
29 expectantly greater than ten years.

30

1 In a second aspect, the present invention extends to
2 a marked line in the ground surface formed by the
3 method and/or material as hereinbefore described.
4

5 According to a third aspect of the present
6 invention, there is provided a marked line forming
7 apparatus, which apparatus comprises one or more
8 rotatable blades, each blade being adapted to form a
9 slit in the ground surface, and adapted to feed
10 around its edge a material for partially inserting
11 into the slit.
12

13 Preferably the apparatus includes a roller following
14 the or each blade, more preferably two or more
15 rollers on which the apparatus traverses along the
16 ground surface.
17

18 According to a fourth aspect of the present
19 invention, there is provided use of a material as
20 hereinbefore defined to make a marked line in a
21 ground surface.
22

23 Preferably the material is a polypropylene, more
24 preferably a gestextile.
25

26 Embodiments of the present invention will now be
27 described by way of example only, and with reference
28 to the accompanying drawings in which:
29

30 Figure 1 is a marked line in a grassy earth surface
31 according to one embodiment of the present
32 invention;

1 Figures 2 a and b are diagrammatic cross sections of
2 the ground in Figure 1 from different directions;
3 Figure 3 is a perspective part view of apparatus
4 according to another embodiment of the present
5 invention;
6 Figure 4 is a schematic part-cross sectional side
7 view of part of the apparatus in Figure 3 in use.

8
9 Referring to the drawings, Figure 1 shows a marked
10 line 2 in a grassy earth-surface 4 as an
11 illustration of the effect of the present invention.
12 The marked line could be used as a pitch line for a
13 soccer or gaelic football pitch.

14
15 Figure 2a shows a cross sectional view through the
16 ground 4 across the path of the marked line 2,
17 showing the location of three lines 6 of white
18 material in the ground surface 4. Figurative grass
19 8 is shown each side of the line 2, although the
20 relative heights of the grass 8 and the parts of the
21 material above the ground surface are for
22 illustrative purposes only.

23
24 It is possible that the grass 8 will re-grow around
25 the visible part of the material. However, material
26 such as polypropylene is not cuttable by most if not
27 all types of lawnmowers, especially those lawnmowers
28 used generally to mow playing surfaces. Thus, it is
29 not a problem if the grass grows in amongst the
30 marked white lines 6, as mowing of the playing
31 surface will reduce it to the same or a lower height

1 of the visible polypropylene fibres, maintaining the
2 visibility of the white lines 6.

3

4 Figure 2b shows a longitudinal cross section of the
5 marked line 2 of Figure 1, showing the material
6 having a woven section 10 which is within the ground
7 surface 4, and the free fibres extending therefrom,
8 the ends of which 12 are visible above the ground
9 surface.

10

11 That part of the material above the ground surface 4
12 is labelled in Figures 2a and 2b as 20, and that
13 part which is below the ground surface 4 is labelled
14 22. The combined parts of the material 20, 22 can
15 be seen as folded, which folding is arranged to fit
16 over the edge of a blade as hereinafter described.

17

18 Figure 3 shows apparatus comprising three blades 30.
19 The blades are rotatable about separate axes 32,
20 parallel, and are offset to be approximately 20mm
21 apart, which distance is adjustable.

22

23 Figure 4 shows schematically the three blades 30,
24 generally housed within a housing 34. At the
25 forward and rear ends of the housing 34 are round
26 surface rollers 36.

27

28 Each blade 30 forms a slit in the ground surface 4
29 by traversing the ground surface 4, eg by being
30 pulled by a tractor through linkage 38. As each
31 blade 30 rotates about its axis 32, it cuts into the
32 ground surface 4.

1
2 Feeding onto each blade 30 (shown only once in
3 Figure 4), is a folded woven polypropylene material
4 approximately 20cm wide, having a central woven band
5 approximately 7-8cm wide, and free weft fibres
6 extending from each side of the central band. The
7 fully woven form of this material is common in the
8 art, and used for forming bales or agricultural
9 flexible sacks and the like.

10
11 As the blades 30 rotate, the folded material 40
12 follows the edge of the blade 30 and is therefore
13 fed into the ground surface 4 as the blade 30 enters
14 also. The force of the blade 30 then locates the
15 base of the material 40 in the slit formed, which
16 material 40 then remains in the ground surface 4
17 whilst the edge of the blade 30 exits the ground
18 surface 4. The free ends 42 of the material 40 are
19 however now visible whilst being securely retained
20 in the ground surface 4 as the ground folds back
21 around the remaining part of the material and holds
22 it in place.

23
24 Any ground disturbance caused by the slits is rolled
25 by the rear roller 36.

26
27 In order to ensure straight lines, the apparatus-
28 pulling means such as the tractor, could be laser
29 guided by a laser set at the end of the intended
30 path of the line, whose beam hits a target on or
31 near the apparatus, which target is noted by the
32 user.

1
2 The present invention has been found to lay the
3 complete lines of the football pitch within a day,
4 which lines then need no further maintenance or
5 repair. Moreover, the free fibres 20 extending
6 above the ground surface will not trip or catch any
7 player, such as by his boots studs. Moreover, the
8 free fibres 20 cannot be cut by a lawnmower such
9 that mowing any playing pitch is not a problem.

10
11 The present invention provides a simple but
12 effective means of providing marked lines, which
13 lines will remain, and need no further repair or
14 maintenance for a number of years, while still
15 providing the same visual effect as painted lines.
16

1/2

Fig 3

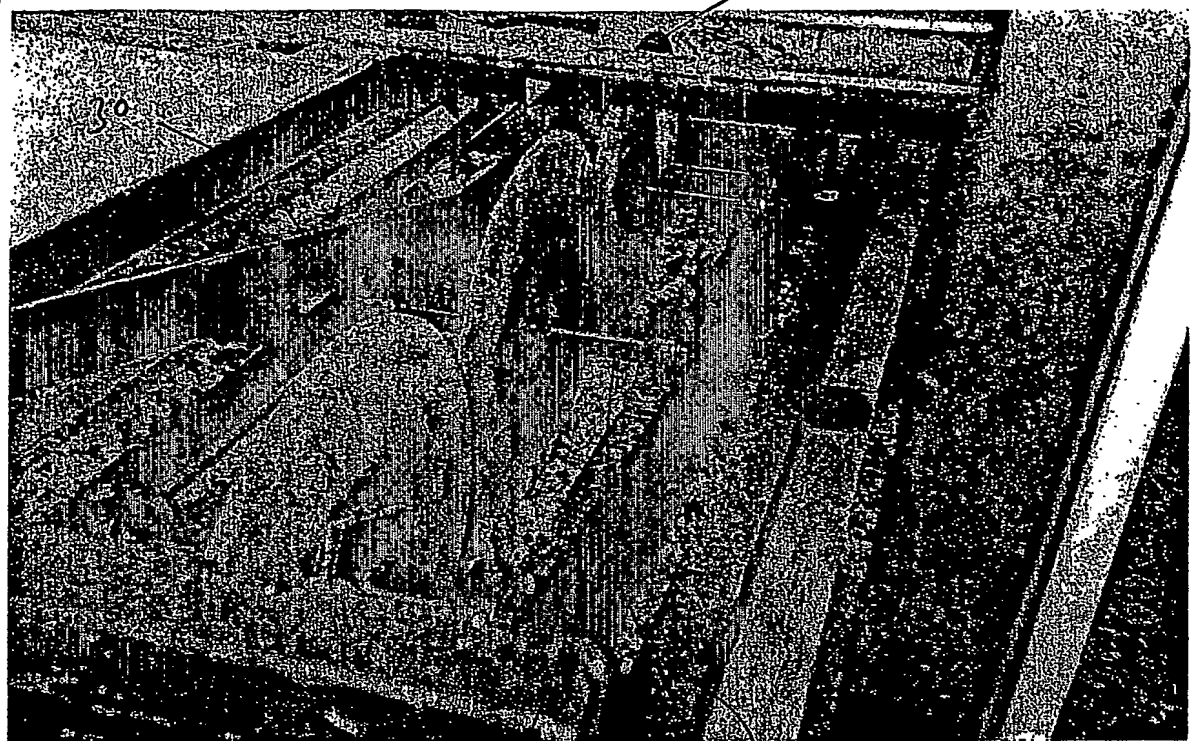


Fig 1

